

## METHOD FOR PRODUCING THIN FILM TOUCH SCREEN PANEL

### BACKGROUND OF THE INVENTION

[0001] 1. Field of the Invention

[0002] The present invention relates to a method for fabricating a thin film touch screen panel.

[0003] 2. Description of the Related Art

[0004] A touch screen panel is an input device capable of inputting a command of a user by a touch of a specific position displayed on a screen of an image display device, etc., with a finger of the user or an object such as a touch pen or a stylus pen.

[0005] For this, in the image display device provided with the touch screen panel on a front face thereof, a force applied to the contact position by a direct touch with the finger of a user or the object is converted to an electrical signal. Therefore, an instruction corresponding to the contact position selected by the user is input to the image display device as an input signal generated by the electrical signal.

[0006] Since a separate input device such as a keyboard and a mouse which are connected to the image display device to input an operation command may be replaced by the above-described touch screen panel, it is a recent trend to gradually enlarge the application fields of the touch screen panel.

[0007] Various types of touch screen panel such as a resistive film type, surface acoustic wave type using an infrared or ultrasonic wave, capacitance touch type, or the like, are known in the related art for implementing the touch screen panel. Among these, in the capacitance type touch screen panel, when the finger of a user or the object touches a specific position displayed thereon, a change in capacitance formed by conductive sensing patterns with adjacent other sensing patterns or a ground electrode is detected by the image display device equipped with the touch screen panel, and thereby a force applied to the contact position is converted to an electrical signal.

[0008] Generally, the above-described touch screen panel is adhered on an outer surface of a flat panel display device such as a liquid crystal display device, or an organic electroluminescence display device to be commercialized in many cases. Accordingly, the touch screen panel needs to have characteristics such as a high transparency and a small thickness.

[0009] Recently, a flexible flat panel display device has been developed, and in accordance with this trend, it is necessary for the touch screen panel adhered on the flexible flat panel display device to have flexible characteristics.

[0010] However, the capacitance type touch screen panel needs a thin film deposition, pattern formation process, or the like, in order to form sensing patterns, etc., for implementing a touch sensor. Therefore, characteristics such as high heat resistance and chemical resistance, or the like are required. Accordingly, the capacitance type touch screen panel is provided with a transparent electrode laminate which is formed on a base film by applying a resin such as a polyimide resin having excellent heat resistance and curing the same.

[0011] On the other hand, such a thin and flexible base film may be easily bent or distorted. Therefore, it is difficult to handle the base film during a manufacturing process thereof, and form the transparent electrode laminate.

[0012] As a solution for solving the above-described problem, a method including the processes of forming an adhesive layer on a glass and adhering a base film thereon, and forming a transparent electrode laminate on the base film, and then delaminating the base film from the glass has been proposed. However, in such a case, since the adhesive layer is contracted and/or expanded by thermal and physical energy applied thereto during the adhesive layer forming process and the adhering process, the glass is bent, and thereby it is also difficult to form the transparent electrode laminate similar to as described above.

[0013] For example, Korean Patent Laid-Open Publication No. 2012-133848 discloses a flexible touch screen panel with no proposal for solving the above-described problems.

### SUMMARY OF THE INVENTION

[0014] Accordingly, it is an object of the present invention to provide a method for fabricating a flexible touch screen panel in which a process of forming a transparent electrode laminate may be more precisely and reliably performed.

[0015] The above object of the present invention will be achieved by the following characteristics:

[0016] (1) A method for fabricating a thin film touch screen panel including: forming an adhesive layer on a convex portion of an arcuate spherical-shaped glass; adhering a base film on the adhesive layer; and forming a transparent electrode laminate on the base film, wherein the convex portion of the glass is flattened by applying heat to the adhesive layer after forming the adhesive layer or adhering the base film.

[0017] (2) The method according to the above (1), wherein the arcuate spherical-shaped glass is convex to one side thereof, and has a multidirectional arcuate spherical shape.

[0018] (3) The method according to the above (1), wherein the glass is an alkali-free glass, soda lime glass, or chemically-strengthened glass.

[0019] (4) The method according to the above (3), wherein the chemically-strengthened glass has a strengthened layer formed thereon with a thickness of 1 to 45  $\mu\text{m}$ .

[0020] (5) The method according to the above (1), wherein, when the glass is disposed in such a way that a convex surface thereof faces a bottom, a height of the glass from the bottom to the highest point of a surface on which the convex surface is formed is 100 to 6,000  $\mu\text{m}$ .

[0021] (6) The method according to the above (1), wherein the heating process after forming the adhesive layer is performed at a temperature of 60 to 300° C. for 60 to 1,800 seconds.

[0022] (7) The method according to the above (1), wherein the heating process after adhering the base film is performed at a temperature of 60 to 300° C. for 60 to 1,800 seconds.

[0023] (8) The method according to the above (1), further including: applying a composition for forming an insulation layer or a hard coating layer on one surface of the glass and heating the same so as to form the glass in an arcuate spherical shape before forming the adhesive layer.

[0024] (9) The method according to the above (1), further including: chemically strengthening the glass so that strengthened layers formed on both surfaces thereof have different thicknesses from each other so as to form the glass in an arcuate spherical shape before forming the adhesive layer.